## **ABSTRACT**

Provided are a system and method for in vivo and in situ detection of body lumen conditions. The system comprises at least one interaction chamber for containing an endo-luminal sample, the interaction chamber comprising at least one indicator, at least one light source for illuminating the interaction chamber; and at least one optical detector for detecting in vivo optical changes occurring in the interaction chamber. The reaction between the indicator and sample may result in an optical change, which is detected and possibly imaged by the optical detector.

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